UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,505	09/30/2003	Arvind Arun Pande	VRT0097US	6043

60429 7590 08/14/2009

CAMPBELL STEPHENSON LLP
11401 CENTURY OAKS TERRACE
BLDG. H, SUITE 250
AUSTIN, TX 78758

EXAMINER	
TIMBLIN, ROBERT M	
ART UNIT	PAPER NUMBER
2167	

MAIL DATE	DELIVERY MODE
08/14/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ARVIND ARUN PANDE, SAURABH RAMCHANDRA GODBOLE, and ANAND A. KEKRE

Appeal 2008-005735
Application 10/675,505
Technology Center 2100

Decided: August 14, 2009

Before JAMES D. THOMAS, JEAN R. HOMERE, and THU A. DANG, *Administrative Patent Judges*.

THOMAS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1 through 5, 7 through 11, 13 through 17, 19 through 21, 23, and 24. Appellants have canceled claims 6, 12, 18, and 22. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Invention

> The method includes determining that a change occurred to data in a region of a primary volume without including the region in a set of regions designated for replication to a secondary volume. The region is added to the set of regions designated for replication to the secondary volume and replicated.

(Abstract, ll. 15-18; Spec. 30; Figs. 3-5).

Representative Claim

1. A method comprising:

determining that a change occurred to data in a first region of a first plurality of regions of a first volume, wherein the change resulted from a restore operation; and in response to determining that the change occurred, updating information identifying a set of regions designated for replication to a second volume, wherein subsequent to the updating the information, the first region is included in the set of regions designated for replication to the second volume.

Prior Art and Examiner's Rejections

The Examiner relies on the following references as evidence of unpatentability:

Huras	2005/0278393 A1	Dec. 15, 2005 (filed Apr. 29, 2003)
Shih	6, 615, 223 B1	Sept. 2, 2003

Lomet 6,578,041 B1 June 10, 2003

All claims on appeal, claims 1 through 5, 7 through 11, 13 through 17, 19 through 21, 23, and 24 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the Examiner relies upon Huras in view of Shih as to claims 1 through 5, 7, 8, 11, 13 through 17, 19 through 21, 23, and 24 in a first stated rejection. Dependent claims 9 and 10 stand rejected in a second stated rejection further relying upon Lomet in addition to the initial combination of references.

Claim Groupings

According to Appellants' arguments in the Brief (no Reply Brief has been filed), Appellants consider, as do we, independent claim 1 as representative of the subject matter of all the claims in the first stated rejection. Additionally, with respect to the second stated of rejection, Appellants rely for patentability upon the arguments set forth for representative independent claim 1in the first stated rejection.

ISSUE

Have Appellants shown that the Examiner erred in finding that the subject matter of representative independent claim 1 on appea1 would have been obvious to one of ordinary skill in the art in view of the collective teachings and suggestions of Huras and Shih within 35 U.S.C. § 103?

FINDINGS OF FACT ("FF")

1. Appellants have noted the state of the prior art in the following:

> Copies of primary data are made on different physical storage devices, and often at remote locations, to ensure that a version of the primary data is consistently and continuously available.

(Spec. para. 2, ll. 6-8).

> Typical uses of copies of primary data include backup, Decision Support Systems (DSS) data extraction and reports, testing, and trial failover (i.e., testing failure of hardware or software and resuming operations of the hardware or software on a second set of hardware or software). These copies of data are preferably updated as often as possible so that the copies can be used in the event that primary data are corrupted, lost, or otherwise need to be restored.

(Spec. para. 3, ll. 1-6).

> Other types of data storage areas take form as one or more physical devices, such as one or more dynamic or static random access storage devices, one or more magnetic or optical data storage disks, or one or more other types of storage devices. With respect to backup copies of primary data, preferably the backup storage devices are direct access storage devices such as disks rather than sequential access storage devices such as tapes. Because disks are often grouped to form a logical storage volume that is used to store backup copies of primary data, the term "storage area" is used interchangeably herein with "storage volume;" however, one of skill in the art will recognize that the systems and processes described herein are also applicable to other types of storage areas and that the use of the term "storage volume" is not intended to be limiting. A storage volume is considered to be made up of regions. A storage volume storing the primary data is referred to herein as a primary volume, and a storage area storing a backup copy of the primary data is referred to herein as a backup volume or a secondary volume.

(Spec. para. 5, ll. 1-13).

> One way to achieve consistency and avoid data loss is to ensure that every update made to the primary data is also made to the

> backup copy, preferably in real time. However, when a primary volume becomes corrupted and the result of the update corrupting the primary data is propagated to backup volumes, "backing out" the corrupted data and restoring the primary data to a previous state is required on every copy of the data that has been made. Previously, this problem has been solved by restoring the primary volume from a snapshot volume made before the primary data were corrupted. Once the primary volume hosting the primary data is restored, the entire primary volume is copied to each backup volume to ensure consistency between the primary data and backup copies. Only then can normal operations, such as updates and replication, of the primary volume resume.

(Spec. para. 6).

> One reason that the entire primary volume is copied to each backup location is that some applications, such as database applications, require that the updates made to the primary data are made to the backup copy of the primary data in the same order.

(Spec. para. 7, ll. 1-3).

2. As the title of Huras indicates, his invention is focusing upon efficient, enhanced performance of recovery/restore operations in a database management system. General reference is made to Figures 2 through 5 and Figure 8, which illustrates a restore operation. To aid in understanding the terminology of Huras, we make general reference to paragraph 7:

> Known DBMSs may organize multiple tablespaces and store tables of the database. To recover selected tablespaces in the event of a system crash, a backup image of the database or the table space is restored followed by rolling forward through the log files that were created since the backup was taken. Log files contain log records that describe the changes made to the data currently stored in the database. Each log file contains one or more log records that apply to one or more tablespaces.

(Para. 7, ll. 1-11).

As recognized by the Examiner, paragraph 73 of Huras emphasizes that disks/volumes of disks, to the extent claimed, are known in the art from an artisan's perspective of database management systems, which are discussed from a prior art's perspective beginning at column 1 of page 1 of Huras and the subject of his invention, as initially depicted in database system 200 in Figure 2.

3. Again, as Shih's title reveals, his invention focuses on data replication from the illustrated volumes 4 in Figure 1 in one database site 2 to another database site 52 and volume 54. Changes must be replicated to the secondary site. In a corresponding manner to the teachings of Huras, Shih utilizes change logs and replication logs to keep track of the changes, which include updating, deleting, and adding functionalities at a minimum.

ANALYSIS

At the outset, we note that Appellants have not challenged the combinability of Huras and Shih within 35 U.S.C. § 103 in the Brief. Therefore, no governing case law is cited in this opinion to that effect. The remaining determination to be made is whether that combined teachings and/or suggestions among these references would have rendered obvious to one of ordinary skill in the art of the subject matter that is claimed and argued before us in representative independent claim 1 on appeal. Beginning at page 5 through page 9 of the Brief, Appellants present arguments to essentially every clause

of representative independent claim 1 on appeal. These arguments focus only upon the teachings in Huras and make only passing mention to the teachings relied upon by the Examiner in Shih. In fact, Appellant does not contest what the Examiner relies upon that is in Shih within the arguments presented before us.

Therefore, we affirm the Examiner's rejection before us of representative independent claim 1 on appeal essentially for the reasons set forth by the Examiner's Response to Argument section beginning at page 10 of the Answer. Significantly, since no Reply Brief has been filed, Appellants do not contest these responsive positions of the Examiner.

Among the three labeled arguments presented in the Brief between pages 5 through 9, the Examiner has met head on each one of them and showed corresponding teachings and suggestions in Huras to the features argued not to be present in this reference. Of equal significance, the Examiner has persuasively shown that Appellants' own Specification at paragraph 5, reproduced earlier in FF 1, indicates to the artisan that Appellants regard the claimed "storage volume" as claimed to be interchangeable with a broad storage area concept within the admitted prior art. Both are consistent with the teachings in Huras and Shih. We note that a brief assessment of the teachings of Huras in FF 2 must begin with the understanding of the terminology noted in paragraph 7 reproduced there that sets the logical framework of the Examiner's analysis of this reference.

It is interesting to observe that there is no positive statement of replication in representative independent claim 1 on appeal, which

merely recites the designation of "for replication" to another storage volume. An actual replication function is not recited until dependent claim 7, for example. Nevertheless, the overlapping teachings of this concept between Huras and Shih noted in FF 2 and 3, as well as the Examiner's own extensive correlation are equally persuasive of unpatentabillity. The updating capabilities argued not to be present among these references are taught such as to require the replication in the second database or data storage volume area. FF1 indicates as well that this updating requirement of claim 1 was known in the art.

CONCLUSION and DECISION

Appellants have not shown that the Examiner erred in finding that the combination of teachings and suggestions of Huras and Shih would have rendered obvious to one of ordinary skill in art of the subject matter of representative independent claim 1 on appeal. Therefore, the Examiner's decision to reject all claims on appeal under 35 U.S.C. § 103 is affirmed. All claims on appeal are unpatentable.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED

erc

CAMPBELL STEPHENSON LLP
11401 CENTURY OAKS TERRACE
BLDG. H, SUITE 250
AUSTIN, TX 78758